



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

SALT LAKE DISTRICT OFFICE

2370 South 2300 West
Salt Lake City, Utah 84119

3500 (U-027)

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DIVISION OF
OIL, GAS & MINING

14 FEB 1989

Diane Neilson, Director
Utah Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180

Dear Ms. Neilson,

At the request of the Bureau of Land Management, the U.S. Geological Survey, Water Resources Division, will be conducting studies on the Bonneville Salt Flats. A 1988 investigation by the BLM has shown that approximately 1% of the salt is lost from the salt flats each year. In order to better understand the mechanisms of salt loss, causative factors, and potential remedial measures, the USGS will be gathering additional data on the salt flats and doing computer modeling of brine flow within the salt flats and other tasks.

Your comments on the objective, scope, and any additional factors needing study are requested. The following items have been identified for study.

1. Use recently developed computer modeling utilizing brine density (rather than equivalent fresh water head) to identify direction and amount of the brine flow and influence of climatological factors on brine flow. Much of the existing data base would be used, gathering new data only when necessary.
2. Quantitatively evaluate remedial measures which would reduce salt loss and/or replace salt removed from the salt flats.

Please submit comments and recommendations to me by March 10, 1989. If you have any questions, please contact Steve Brooks at 524-5348.

Sincerely yours,

Deane H. Zeller

Deane H. Zeller
District Manager

*See attached
Solicitors Memo
of 6/19/89*

SALT FLATS STUDY;

Goal: The over-all intent of the study is to learn what the life cycle of the BSF is; how the BSF is depleted, and if it is naturally restored, how it is restored. The study should focus on those natural and man-made factors that contribute to depletion and restoration forces that are at work.

Specific Objectives:

1. To determine how salt is lost from the salt crust
 - by underground movement of "brines" containing salt
 - at what rate or in what volumes per unit of time
 - in what directions
 - by what forces or cause agents
 - by overland movement of salt
 - by wind or water movement
 - by any other forces
2. To identify measures, treatments, or practices that could be employed to stop the loss of salt from the salt crust of the BSF.
3. To identify feasible actions or practices that would restore or replace the salt that has been lost/is being lost from the BSF.
4. To determine to what extent existing BLM potash leases are contributing to loss of the salt crust.
5. To determine if potash reserves on the lands under BLM lease contain sufficient reserves to warrant continuation of those leases.
6. To determine if salt is being "drained" from the BSF in combination or separate from magnesium brines onto other leased BLM lands or private lands used for potash production.

Howard/Steve:

After reviewing the Solicitors letter, I have several other items that probably should be included in the USGS study. They are:

1. The USGS should identify any alternative "mining" methods that Reilly could employ that would avoid extracting salt from the BSF. (This may be the same as #2 on my other sheet)
2. What percent of Reilly's production (thence income) is derived from their existing BLM leases.